

Notice of Allowability

Application No.

10/692,683

Examiner

Joni Hsu

Applicant(s)

CHEN, CHIA-HSIN

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to papers filed July 15, 2005.
2. ☒ The allowed claim(s) is/are 8-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments, see pages 6-9, filed July 15, 2005, with respect to Claims 8-20 have been fully considered and are persuasive. Therefore, these claims are allowable, as discussed below.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

3. The application has been amended as follows:
Claims 1-7 are cancelled.

Allowable Subject Matter

4. Claims 8-20 are allowed.

The following is an examiner's statement of reasons for allowance:

5. The prior art taken singly or in combination do not teach or suggest a circuit for downscaling a source image in both horizontal and vertical directions to generate a destination

image, comprising an input processing unit providing image data at a first access frequency; a horizontal direction image processing unit generating first temporary image data at the first access frequency; a first stage line buffer unit temporarily storing the first temporary image data at the first access frequency, wherein the first stage line buffer unit comprises a plurality of line buffers; a vertical direction image processing unit generating second temporary image data at the first access frequency; a second stage line buffer unit, temporarily storing the second temporary image data at the first access frequency; and an output processing unit, reading the second temporary image data at a second access frequency to generate the destination image, as recited in Claims 8 and 17. Claims 9-16 and 18-20 depend from these claims, and therefore also contain allowable subject matter.

6. The closest prior art (Marlton US005594467A) teaches a circuit for downscaling a source image in both horizontal and vertical directions to generate a destination image (Col. 3, lines 30-34), comprising an input processing unit (26, 30, Figure 2; Figure 3), adapted for receiving the source image; a horizontal direction image processing unit (100, 104, 106, Figure 4), electrically coupled to the input processing unit, receiving the image data from the input processing unit and downscaling the image data in the horizontal direction to generate first temporary image data (Col. 7, lines 14-64); a first stage line buffer unit (118, Figure 4), electrically coupled to the horizontal direction image processing unit, temporarily storing the first temporary image data, *(output from the horizontal chroma interpolator 106 is fed to a first selector matrix 108, selector 108 has input/output lines connected to a vertical scaler 116, Col. 8, lines 12-16; vertical scaler 116 includes a line store 118, linestore 118 is of sufficient capacity to hold a full width line of*

video data, Col. 8, lines 33-36); a vertical direction image processing unit (116, Figure 4), electrically coupled to the first stage line buffer unit (*video signal is routed through the first selector 108 to the vertical scaler, and then returned through the first selector 108 to the dual port frame store 110, the output from the framestore 110 is fed through the second selector 114 to the vertical scaler 116*, Col. 8, lines 19-32), receiving the first temporary image data from the first stage line buffer unit and downscaling the first temporary image data in the vertical direction to generate second temporary image data (Col. 8, line 33-Col. 9, line 55); a second stage FIFO (34, Figure 2; 224, Figure 13; Col. 4, lines 44-45) electrically coupled to the vertical direction image processing unit (Col. 5, lines 56-59), temporarily storing the second temporary image data (Col. 14, lines 51-52; Col. 14, line 63-Col. 15, line 28); and an output processing unit (34, Figure 2), electrically coupled to the second stage FIFO, reading the second temporary image data from the second stage FIFO to generate the destination image (Col. 4, lines 44-45; Col. 5, lines 65-67; Col. 26, lines 20-24). However, Marlton does not teach providing the source image data at a first access frequency and the destination image is generated at a second access frequency, the first stage line buffer comprises a plurality of line buffers, and the second stage FIFO is a line buffer.

7. Another prior art (Min US006184907B1) teaches that the access frequency is determined by the FIFO capacity (Col. 1, lines 62-63). However, Min does not teach a first stage line buffer unit and a second stage line buffer unit.

8. Another prior art (Hoshikawa US006831700B2) teaches that the line buffer unit comprises a plurality of line buffers in series for periodic storing of the first temporary image data in each of the line buffers (Col. 3, lines 21-39). However, Hoshikawa does not teach a first stage line buffer unit and a second stage line buffer unit.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art of Record

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Marlton (US005594467A) teaches converting video signals asynchronously to achieve effects such as video picture magnification and reduction (Col. 1, lines 64-67).

2. Min (US006184907B1) teaches performing real-time interpolation of video data (Col. 2, lines 18-21).

3. Hoshikawa (US006831700B2) teaches a video signal processor comprising a plurality of line memories, the video signal processor increasing and decreasing the resolution of an image constituted by video data series (Col. 3, lines 40-45).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



Kee M. Tung
Primary Examiner